Write your name here

Surname	Other names

Pearson Edexcel GCE

Centre Number | Candidate Number

Music Technology

Advanced
Unit 4: Analysing and Producing

Wednesday 5 June 2019 – Afternoon
Time: 2 hours (plus 10 minutes setting up time)

Paper Reference
6MT04/01

You must have: CD ROM containing component files, blank CD for burning finished tasks, headphones or monitor speakers, computer workstation and music production software. Supplementary page containing Figure 1 for question 4(b) (enclosed).

Total Marks

Setting up time

1. Open a new project in the music production software using 16 bit/44.1kHz sample rate.
2. Save the project as **unit4_your candidate number (e.g. *unit4_1234*)** in the folder designated by your centre.
3. Set the metronome to 124 bpm.
4. Import "drums.wav" from the CD ROM to a stereo audio track in the music production software, aligned with the beginning of bar 1.
5. Ensure that the drums are audible and play in time with the metronome. The drums begin playing at bar 2, beat 1.

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Write your answers to Section A in the spaces provided in this question paper.
- You must save your exported audio files for Questions 2(b) & 3(d) in Section A, and Question 5 in Section B to your project folder within the 2 hour examination time.
- You must ensure that the left and right earpieces of your headphones are worn correctly.
- Access to the internet or local network is **not** permitted.

Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed
  – *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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SECTION A

Answer ALL questions. Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 Listen to the drums that you have imported.

(a) Identify the most appropriate quantise value for the drums. Put a cross ☒ in the correct box:

(1)

☒ **A** 1/32

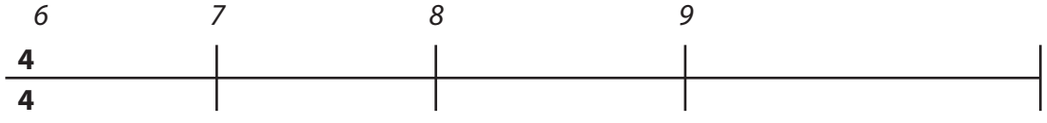
☒ **B** 1/16

☒ **C** 1/12

☒ **D** 1/8

(b) Notate the hi-hat rhythm in bars 6-9.

(4)



(c) Describe the reverb used on the clap in bars 16-17.

(2)

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(d) Delay has been introduced to the drums at the end of bar 33. Identify the settings that would have been used.

Control	Setting
Time (note value)	**(1)**
Feedback (%)	**(1)**
High cut (Hz)	**(1)**

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Import "bass.wav" from the CD ROM to a new stereo audio track in your music production software. Ensure that the beginning of this audio track is aligned with the start of bar 1. The bass begins at the start of bar 6.

(e) Bars 12-15 of the bass part are notated below.

(i) Fill in the four missing pitches (each marked by an asterisk).

(4)

(ii) Circle the note on the score that has pitch bend.

(1)

(iii) Identify the pitch bend range. Put a cross in the correct box.

(1)

- ☒ **A** 2 semitones
- ☒ **B** 7 semitones
- ☒ **C** 12 semitones
- ☒ **D** 24 semitones

(Total for Question 1 = 16 marks)

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2 Import the MIDI file "synth.mid" from the CD ROM to a new MIDI/instrument track in your music production software. Align the part so that it begins playing at the start of bar 2.

Import "synth example.wav" from the CD ROM to a new stereo audio track in your music production software. The file illustrates how bars 25-26 of the synth should sound. **You should not use this audio in your final mix.**

(a) Identify the highest note velocity in the MIDI file.

(1)

.....

(b) Create a synth sound that matches "synth example.wav".

(i) Ensure that the octave matches the example.

(1)

(ii) Use a saw wave with the stereo effect in the example. No other effects should be present.

(2)

(iii) Ensure filtering matches the example.

(1)

(iv) Copy the amplitude envelope of the example.

(3)

Solo the completed synth part. Turn off the metronome click.

Bounce/export the completed synth part as a single 16 bit/44.1kHz stereo .wav file to the designated folder on your computer.

Name it 'task1_ your candidate number' (e.g. task1_1234).

(Total for Question 2 = 8 marks)

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3 Import "vocals.wav" from the CD ROM to a new stereo track in your music production software. Ensure that the beginning of this audio track is aligned with the start of bar 1. The vocals begin in bar 2.

(a) Identify the response time of the vocal pitch correction.

(1)

☒ **A** 1ms

☒ **B** 200ms

☒ **C** 500ms

☒ **D** 1000ms

(b) In bars 22-25, EQ has been applied to the vocals. On the graph below, illustrate the two EQ curves used.

(i) Label the two axes.

(2)

(ii) Draw the mid-range EQ used to add a hard edge to the vocals.

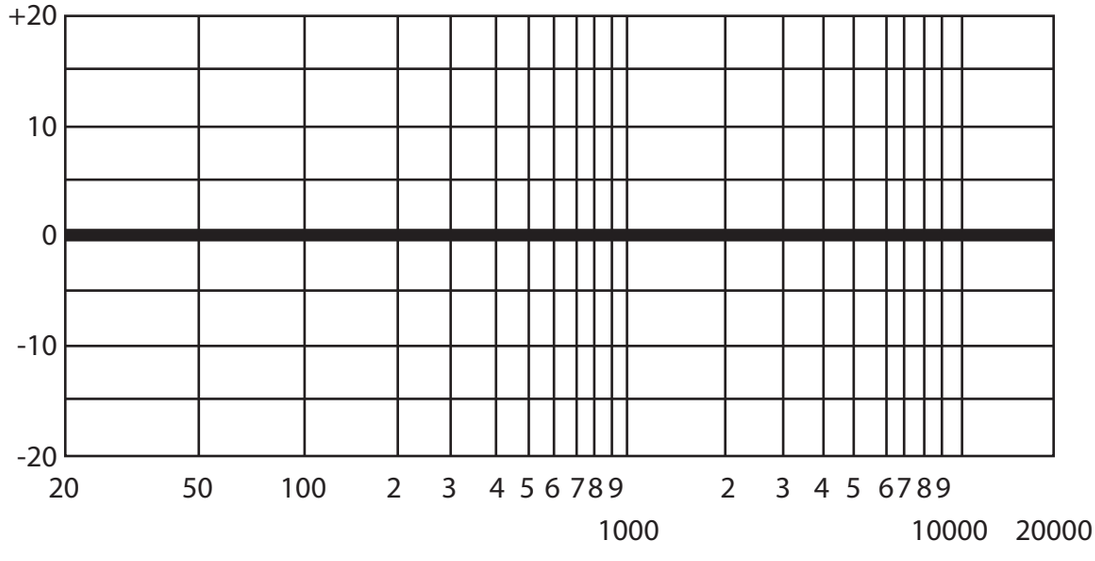
(3)

(iii) Draw the high pass filter used to thin the vocals.

(3)

(iv) On the curve you have drawn for part (iii), draw a cross to indicate the high pass filter cutoff frequency.

(1)



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(c) Compression has been added to the vocal.

(i) Describe the settings used.

(2)

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(ii) The compression has been added post EQ in the signal chain. Explain why putting compression post EQ is particularly important in this case.

(2)

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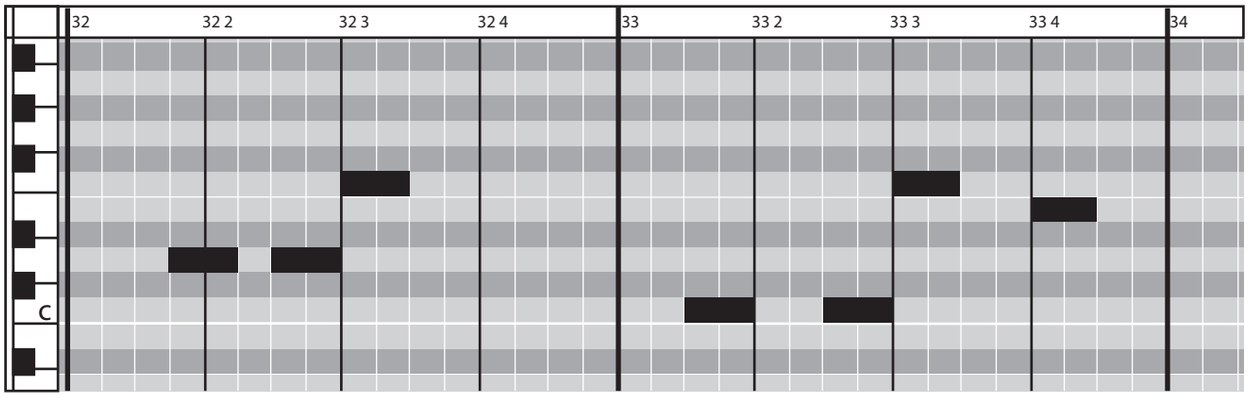
(d) Complete the vocal part for bars 32-33 in your music production software.

- Use the vocal syllable heard in bar 32.
- Bars 32-33 must have the same melody and rhythm as bars 30-31.
- The melody and rhythm are shown in the piano roll editor below.

(8)



Solo the completed vocal part. Turn off the metronome click.

Bounce/export the completed vocal part as a single 16 bit / 44.1kHz stereo .wav file to the designated folder on your computer.

Name it 'task2_ your candidate number' (e.g. task2_1234).

(Total for Question 3 = 22 marks)

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4 Answer EITHER Question 4(a) OR 4(b). You are advised to keep your answer to a maximum of 250 words. You may write in continuous prose, use bullet points, a table and/or diagrams to communicate your answer.

EITHER

*(a) Describe how you would capture an electric guitar using close mic techniques. Describe how you would capture an electric guitar using DI. Identify the advantages of each method.

(16)

OR

*(b) Figure 1 shows a dynamic microphone and a condenser microphone. Explain features of these microphones that can be seen from the pictures. Identify the advantages of each type of microphone.

(16)

Indicate which question you are answering by marking a cross in the box ☒. If you change your mind, put a line through the box ☒ and then indicate your new question with a cross ☒.

Chosen question number: **Question 4(a)** ☒ **Question 4(b)** ☒

Figure 1 is provided on a supplementary page.

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(Total for Question 4 = 16 marks)

TOTAL FOR SECTION A = 62 MARKS

SECTION B

5 You should now have the following tracks imported on the computer: drums, bass, synth and vocals.

Follow the instructions below to produce a final stereo mix.

(a) Apply automated panning to the vocals. Only bars 4-5 should be affected; all other bars should be panned to the centre. From bar 4:
- the first "la la day" should be panned centre
- the second "la la day" should be panned hard left
- the third "la la day" should be panned hard right.

(3)

(b) Listen to the effect on the vocals in bars 14-17. Recreate that effect in bars 18-21.

(3)

(c) Apply an automated filter to the drums.
- Only bars 22-25 should be affected.
- Bar 25, beats 3 and 4 should not be filtered.
- Use a low pass filter with a steep roll-off.
- The cutoff frequency should be set to 20kHz at the start of bar 22.
- Gradually decrease the cutoff frequency until bar 25 beat 2.
- Bar 25 beat 2 should be just about audible.

(3)

(d) Gate the bass.
- Only bars 28-29 should be affected.
- The drum track should trigger the side chain of the gate so that the bass plays in time with the kick drum and hand clap.
- The hi-hats should not trigger the gate.

(3)

(e) Balance the mix.
- Ensure that all of the tracks can be heard clearly.

(3)

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(f) Produce a final stereo mix.

- Ensure that the mix output is at as high a level as possible.
- It should be free from distortion.
- Do not limit or compress the mix output.
- Ensure that the beginning and the end of the music are not cut off.
- Ensure that silences at the beginning and at the end do not exceed one second.

(3)

Turn off the metronome click.

Bounce/export the completed mix as a single 16 bit / 44.1kHz stereo .wav file to the designated folder on your computer.

Name it 'task3_your candidate number' (e.g. task3_1234).

(Total for Question 5 = 18 marks)

TOTAL FOR SECTION B = 18 MARKS
TOTAL FOR PAPER = 80 MARKS

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